What is claimed is:

1. A method for performing assays using a microsystem platform, wherein the microsystem platform comprises:

      a multiplicity of sample inlet ports arranged around the center of the microsystem platform for receiving a biological sample, wherein each of the sample inlet ports is operatively linked to;

      a multiplicity of microchannels arrayed radially away from the center of the microsystem platform, said microchannels being operatively linked to;

      a multiplicity of reagent reservoirs containing a reagent specific for an analyte to be measured, wherein release of the reagent from each of the reservoirs is controlled by a microvalve, and wherein the multiplicity of microchannels is also operatively linked to;

      a multiplicity of analyte detection chambers arranged peripherally around the outer edge of the microsystem platform,

      wherein movement of the biological sample from the inlet port and through the microchannel and movement of the reagent from the reagent reservoir and through the microchannel is motivated by centripetal force generated by rotational motion of the microsystem platform,

the method comprising:

      operating each of the microvalves to control release of the reagent from the reagent reservoirs by generating a signal, at a time and for a duration whereby the reagent moves into the microchannel and is mixed with the biological sample;

      detecting an amount of analyte present in the biological sample; and

      storing data representing the amount of analyte present in the biological sample upon the microsystem platform.

2. The method of claim 1, wherein operating each of the microvalves to control release of the reagent from the reagent reservoirs by generating a signal comprises:

      setting an RPM for a first valve actuation; and

      upon reaching the RPM, spinning the microsystem platform at the RPM.

3. The method of claim 2, further comprising setting an RPM for a second valve actuation.

4. The method of claim 1, further comprising outputting a representation of the amount of analyte present in the biological sample.

5. The method of claim 4, wherein outputting the representation comprises sending the representation to a display.

6. The method of claim 1, further comprising identifying a status of the microvalve operation.

7. The method of claim 6, further comprising if the status is unacceptable, terminating the method.

8. The method of claim 1, further comprising sending the data representing the amount of analyte present in the biological sample to a storage device via communication selected from the group consisting of telephone, facsimile transmission, and wireless communication.

9. The method of claim 1, wherein operating each of the microvalves to control release of the reagent from the reagent reservoirs by generating a signal comprises calculating the time required to transfer the reagent through the microchannel to mix with the biological sample.

10. The method of claim 9, wherein calculating the time required to transfer the reagent through the microchannel to mix with the biological sample comprises calculating D_t by:

$$D_t = V/Q, \text{ if } L \leq (4V/\pi D^2), \text{ and}$$

$$D_t = (V/Q)*(4\pi D^2 L/4V), \text{ if } L > (4V/\pi D^2)$$

wherein D_t is the time required to transfer a volume V from a reservoir through a microchannel of length L, Q is a rate of flow, and D is a diameter of the microchannel.

11. A computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim 1.

$\wp$

12. A system comprising:

a microsystem platform including:

a multiplicity of sample inlet ports arranged around the center of the microsystem platform for receiving a biological sample, wherein each of the sample inlet ports is operatively linked to;

a multiplicity of microchannels arrayed radially away from the center of the microsystem platform, said microchannels being operatively linked to;

a multiplicity of reagent reservoirs containing a reagent specific for an analyte to be measured, wherein release of the reagent from each of the reservoirs is controlled by a microvalve, wherein movement of the biological sample from the inlet port and through the microchannel and movement of the reagent from the reagent reservoir and through the microchannel is motivated by centripetal force generated by rotational motion of the microsystem platform,

a processing unit; and

machine language instructions stored in data storage executable by the processing unit to perform functions including:

operating each of the microvalves to control release of the reagent from the reagent reservoirs by generating a signal, at a time and for a duration whereby the reagent moves into the microchannel and is mixed with the biological sample;

detecting an amount of analyte present in the biological sample; and

storing data representing the amount of analyte present in the biological sample upon the microsystem platform.

13. The system of claim 12, wherein the machine language instructions are executable to further perform functions including:

generating the time by calculating

$$D_t = V/Q, \text{ if } L \leq (4V/\pi D^2), \text{ and}$$
$$D_t = (V/Q)*(4 \pi D^2 L/4V), \text{ if } L > (4V/\pi D^2)$$

wherein D_t is the time required to transfer a volume V from a reservoir through a microchannel of length L, Q is a rate of flow, and D is a diameter of the microchannel.